

CLAIMS:

1. Vacuum display device, comprising:

- a display screen (130) for displaying image information
- cathode means (120) comprising an emitter material (224) for emitting electrons and
- an electron concentrator (115) for collecting the electrons, having an exit aperture (117)

5 for releasing an electron beam (EB) impinging on the display screen (130),
characterized in that the emitter material (224) is arranged on a first surface (102), said first
surface (102) excluding a first impact area (106) for receiving positive ions, said first impact
area (106) being arranged on a second surface (104) facing the exit aperture (117) and
comprising a projection (117') of the exit aperture (117) on said second surface (104).

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2. Display device as claimed in Claim 1, characterized in that the second surface
(104) at least partially comprises the first surface (102), said first surface (102) enclosing the
first impact area (106).

15 3. Display device as claimed in Claim 2, characterized in that the first surface
(102) is annularly shaped.

4. Display device as claimed in Claim 1, characterized in that the first impact
area (106) is at least partially recessed.

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5. Display device as claimed in Claim 1, characterized in that the display device
comprises a pumping chamber (340) on the emitter side of the electron concentrator (315),
for removing residual gases.

25 6. Display device as claimed in Claim 5, characterized in that the first surface
(302) substantially faces the pumping chamber (340).

7. Display device as claimed in Claim 2 and 5, characterized in that the first impact area (406) is provided with an aperture (408) in connection with the pumping chamber (440), for passing positive ions to said pumping chamber (440).

5 8. Display device as claimed in Claim 5 or 6, characterized in that the pumping chamber (440) comprises a second impact area (408) for receiving positive ions, said second impact area (408) being at least partially recessed.

9. Display device as claimed in Claim 5, characterized in that the pumping
10 chamber (440) comprises a getter.

10. Display device as claimed in Claim 1, characterized in that the electron
concentrator (115) comprises an electron beam guidance cavity being provided with
secondary emission material and having an entrance (116) being larger than the exit aperture
15 (117).

11. Display device as claimed in Claim 1, characterized in that the emitter material
(224) comprises a field emitter.